–METASYS®

APPLICATION NOTE

Metasys Integrator® Compu-Aire Application

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* Indicates those sections where changes have occurred since the last printing.

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Introduction

This document explains the Metasys Integrator® Compu-Aire application. Use this document with the *Metasys Integrator Technical Bulletin (FAN 629.5)*, which provides information on installing and commissioning Metasys Integrator. For information on vendor equipment, see Compu-Aire documentation (obtainable from Compu-Aire representative).

Application Details

Metasys Integrator allows Compu-Aire equipment to become an integral part of the Metasys® and Metasys Companion™ Networks. Once Compu-Aire System 2100s are connected to a Metasys or Companion Network via the Metasys Integrator, their data is available to the full complement of Metasys Facility Management System (FMS) features, including Change-of-State (COS) monitoring, alarm notification, scheduling, trend, and totalization.

The System 2100 connects to one of Metasys Integrator vendor ports. Each Metasys Integrator vendor port can connect to one Compu-Aire System 2100, which allows access to the entire Compu-Aire network. There can be up to 63 units on the Compu-Aire network. Figure 1 shows Compu-Aire and Metasys integration, and Figure 2 shows integration with a Metasys Companion Network.

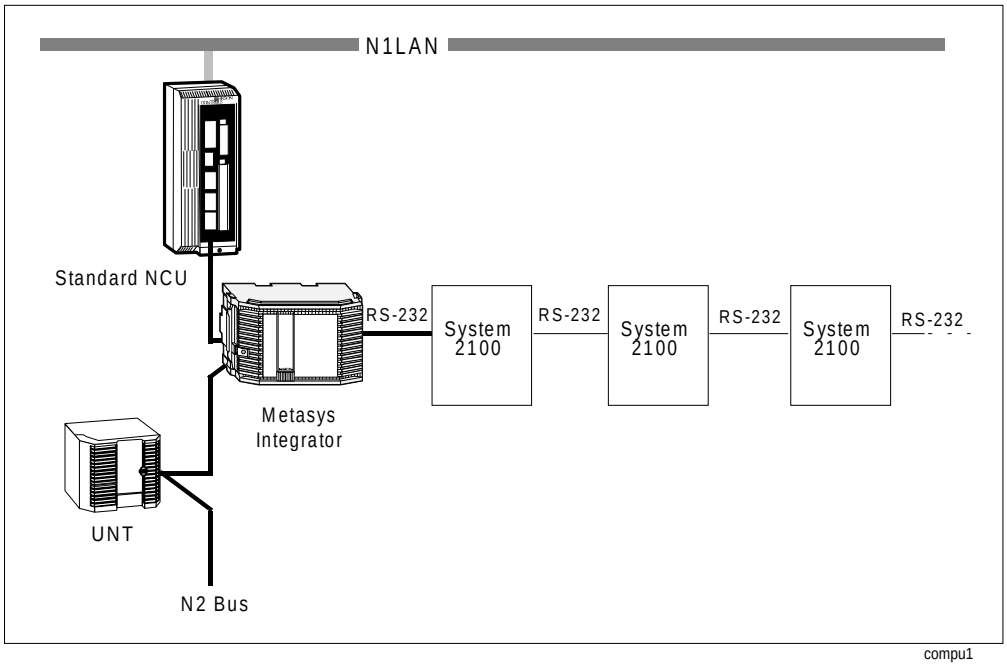

Figure 1: Compu-Aire System 2100s and Metasys Integration

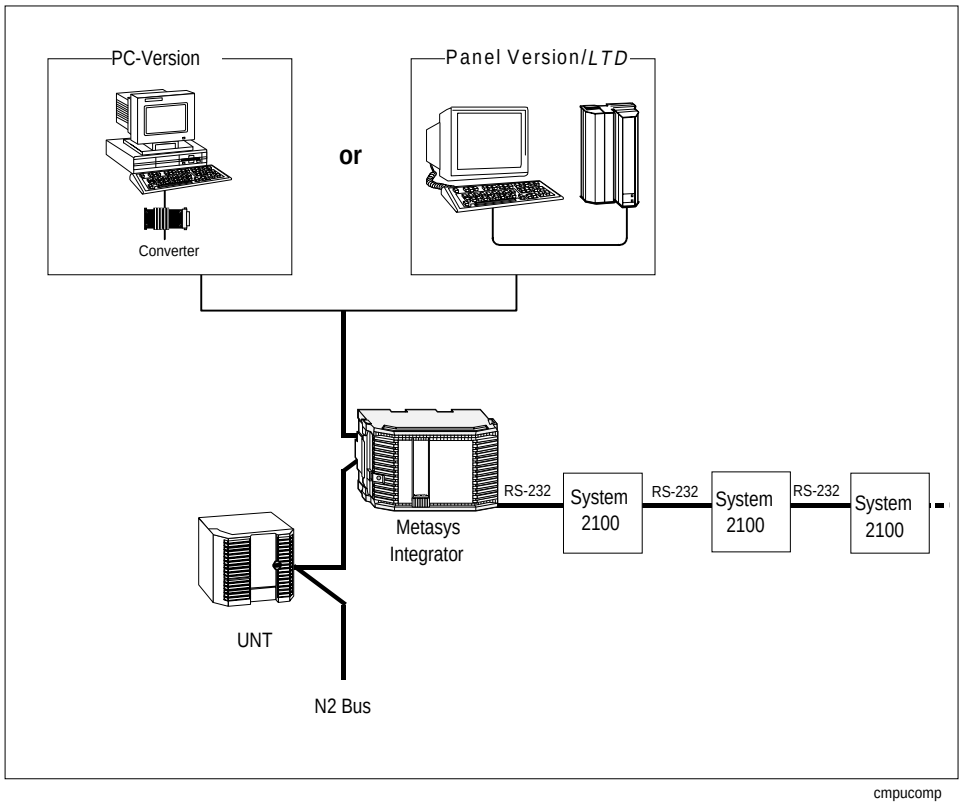

Figure 2: Compu-Aire System 2100s and Metasys Companion Integration

Component Requirements

To integrate Compu-Aire System 2100s, you'll need the following:

- properly installed Compu-Aire 2100s
- RS-232 cable (for connecting the System 2100 to Metasys Integrator)
- Metasys Integrator
- N2 Bus (for connecting Metasys Integrator to the Metasys or Companion Network)
- portable PC for downloading vendor communication tables (.VCT files) and network setup information, and for running diagnostics
- cable for connecting portable PC to Metasys Integrator
- the correct vendor communication table (.VCT file) to download into Metasys Integrator (supplied on diskette)

This document describes the RS-232 cable and the vendor communication tables. Compu-Aire documentation describes their equipment. The remaining components are described in the *Metasys Integrator Technical Bulletin.*

Metasys Release Requirements

To integrate Compu-Aire equipment into the Metasys Network, you'll need:

- Metasys OWS software Release 6.0 or higher
- Metasys Integrator software/firmware 5.0 or higher

Metasys Companion Release Requirements

To integrate Compu-Aire equipment into the Metasys Companion Network, you'll need:

- Metasys Companion Release 5.0 or higher
- Metasys Integrator software/firmware 5.0 or higher

Vendor Component Requirements

Integration between Metasys Integrator and Compu-Aire has been tested with the Compu-Aire System 2100, version V2.0P for low resolution, and version V2.0PF for high resolution. Changes to this equipment or integration of Compu-Aire products not discussed in this document will require additional software development and testing by Systems Products. For information on integrating other products, call Engineering Services in Milwaukee (extension 4357).

Vendor Contact Information

Compu-Aire, Inc.
8167 Byron Rd.
Whittier, CA 90606

Phone: (310) 945-8971
FAX: (310) 696-0724

Design Considerations

When integrating Compu-Aire and Metasys, consider the following:

- Make sure Compu-Aire equipment is set up and running properly *before* integrating with Metasys or Companion Network. (The Compu-Aire representative is responsible for operation of Compu-Aire equipment.)
- Determine whether you are using the System 2100 in standard or enhanced high resolution mode. If you are using the enhanced mode, make sure you download the CA_210E.VCT file. Otherwise, use the CA_2100.VCT file.
- Make sure the System 2100 baud rate is set to 300. (The Compu-Aire representative is responsible for setting the System 2100 baud rate.)
- RS-232 cable distance between Metasys Integrator and the System 2100 can be a maximum of 50 feet.
- Anytime the operator attempts to modify parameters from the front panel of any System 2100 controller, that controller will go offline. It will return to online when front panel malfunctions are complete.

Cable Connections

Cable Pinouts

Use the following cable pinouts for the RS-232 connection between Metasys Integrator and the System 2100.

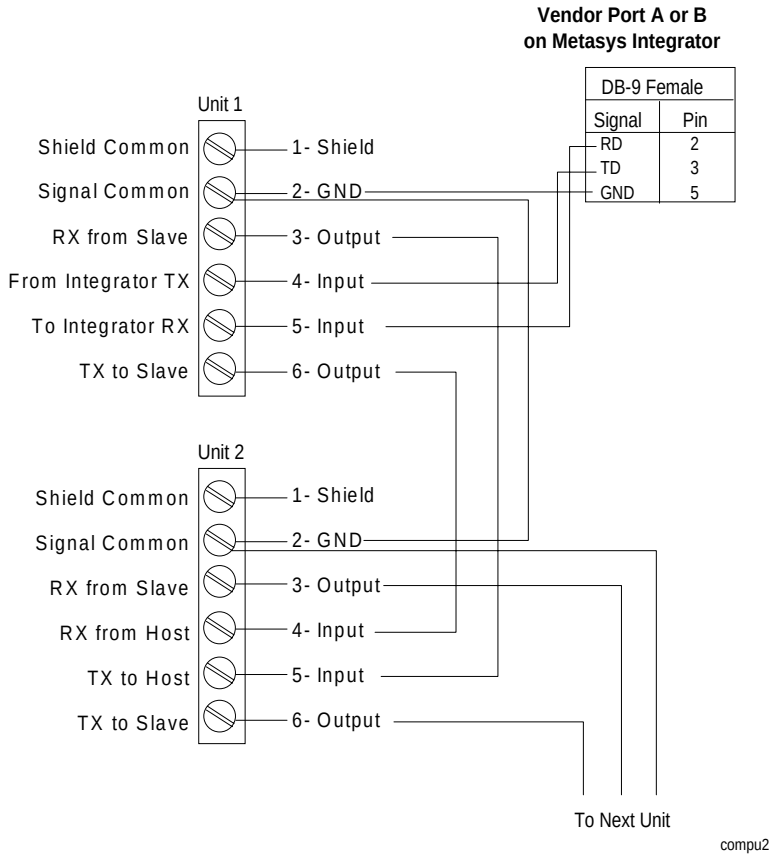

Figure 3: Cable Pinouts

Connecting the Cable

Connect the female end of the RS-232 cable to either Vendor Port A or Vendor Port B on Metasys Integrator. Connect the other end to the RS-232 Serial Port terminal screws on the System 2100 Communication Card.

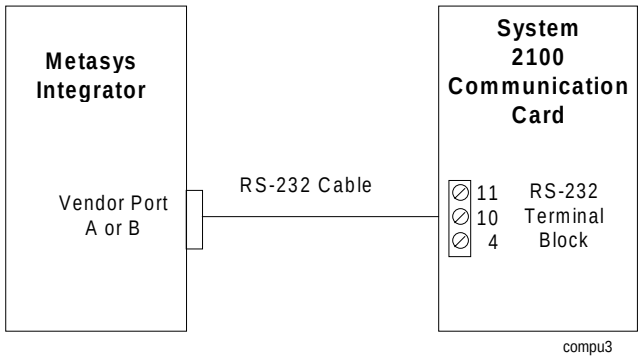

Figure 4: Port to Port Connection

Metasys Integrator Setup

To set up Metasys Integrator, you'll use a portable PC connected to the Metasys Integrator Terminal Port. Metasys Integrator setup involves:

- downloading the correct vendor communication table (.VCT file)
- setting up the ports
- setting up the network addressing

The following table provides information specific to the Compu-Aire application. For detailed procedures, see the *Metasys Integrator Technical Bulletin*.

Table 1: Metasys Integrator Setup for Compu-Aire System 2100

Vendor Communication Table (.VCT File)	
Compu-Aire 2100	CA_S2100.VCT
Compu-Aire 2100 Enhanced	CA_S210E.VCT
Port Setup	
Baud Rate	300
Word Length	8
Stop Bits	1
Parity	None
Interface	RS-232
Network Setup	
Vendor Address	01 to 63 (two digits required)
Timeout Value	10000 ms The timeout value varies for System 2100 networks. You may need to increase the timeout value if a large number of units are connected to the network.
Poll Delay	550 ms
Performance Guide	
Approximate Scan Time (For a single N2 address)	
Compu-Aire 2100	6 seconds

Point Mapping Table

The following table shows the points available for mapping in the Compu-Aire System 2100. This table can be used with either .VCT file.

To get the hardware reference for mapping points to a CS object (via the software model), combine the NPT (Network Point Type) and NPA (Network Point Address). For example, the hardware reference for the Temperature point, the hardware reference is AI1.

Table 2: Compu-Aire System 2100 Points

NPT[1]	NPA[2]	Unit	Description		
AI	1	DegF	Temperature		
AI	2	%RH	Humidity		
AI	3	DegF	Temperature Deadband (01-05)		
AI	4	%RH	Humidity Deadband (02-10)		
BI	1		Fire Detector	0-ok,	1-alarm[3]
BI	2		Smoke Detector	0-ok,	1-alarm[3]
BI	3		Water On Floor	0-ok,	1-alarm
BI	4		Air Flow	0-ok,	1-alarm
BI	5		Water Flow	0-ok,	1-alarm
BI	6		Power Interrupt	0-ok,	1-alarm
BI	7		Change Filter	0-ok,	1-alarm
BI	8		Fan Motor Overload	0-ok,	1-alarm
BI	9		Humidifier Fail	0-ok,	1-alarm
BI	10		Room Over Temperature	0-ok,	1-alarm
BI	11		Room Under Temperature	0-ok,	1-alarm
BI	12		Room Over Humidity	0-ok,	1-alarm
BI	13		Room Under Humidity	0-ok,	1-alarm
BI	14		Humidify	0-off,	1-on
BI	15		De-Humidify	0-off,	1-on
BI	16		Economy Cooling	0-off,	1-on
AO	1	DegF	Temperature Setpoint (60-80)		
AO	2	%RH	Humidity Setpoint (40-60)		
BO	1		Silence Horn	0-n/a	1-Yes[4]

1 Network Point Type

2 Network Point Address

3 Fire/Smoke detectors mapped from the Compu-Aire System 2100 are not intended to meet the requirements of UL 864 or NFPA 72. Smoke detectors installed in Compu-Aire System 2100s required to meet the NFPA 90A, NFPA 101, or other local codes must be connected to an approved protective signaling system serving the building. Please refer to NFPA 90A Chapter 4 for further information.

4 Alarms can only be silenced. They must be corrected at the unit and cleared by a power down reset.

Continued on next page . . .

NPT[1] (Cont.)	NPA[2]	Unit	Description		
BD	1		Compressor 1 LP Fail	0-ok,	1-alarm
BD	2		Compressor 1 HP Fail	0-ok,	1-alarm
BD	3		Compressor 1 OL Fail	0-ok,	1-alarm
BD	4		Compressor 2 LP Fail	0-ok,	1-alarm
BD	5		Compressor 2 HP Fail	0-ok,	1-alarm
BD	6		Compressor 2 OL Fail	0-ok,	1-alarm
BD	7		Heater 1 Fail	0-ok,	1-alarm
BD	8		Heater 2 Fail	0-ok,	1-alarm
BD	9		Heater 3 Fail	0-ok,	1-alarm
BD	10		Heater 4 Fail	0-ok,	1-alarm
BD	11		Heat Stage 1	0-off,	1-on
BD	12		Heat Stage 2	0-off,	1-on
BD	13		Heat Stage 3	0-off,	1-on
BD	14		Heat Stage 4	0-off,	1-on
BD	15		Cool Stage 1	0-off,	1-on
BD	16		Cool Stage 2	0-off,	1-on
BD	17		Cool Stage 3	0-off,	1-on
BD	18		Cool Stage 4	0-off,	1-on
BD	19		Dehumidify Stage 1	0-off,	1-on
BD	20		Dehumidify Stage 2	0-off,	1-on
BD	21		CW Cooling	0-off,	1-on
BD	22		HW Heating	0-off,	1-on
BD	23		Humidify Flush Cycle	0-off,	1-on

1 Network Point Type

2 Network Point Address

Metasys Network Setup

Metasys Network Setup is described in the *Metasys Integrator Technical Bulletin*. This section contains details specific to Compu-Aire applications.

Mapping to a CS Object

Table 3: Software Model and CS Object Details

Application	**Software Model** (on models diskette)	**Display Attribute** (recommended)	**NT Command Attribute** (recommended)
System 2100	CA_S2100.DDL	AI1 Temperature	BO1 Silence Horn

Notes

Notes

Notes

JOHNSON CONTROLS

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